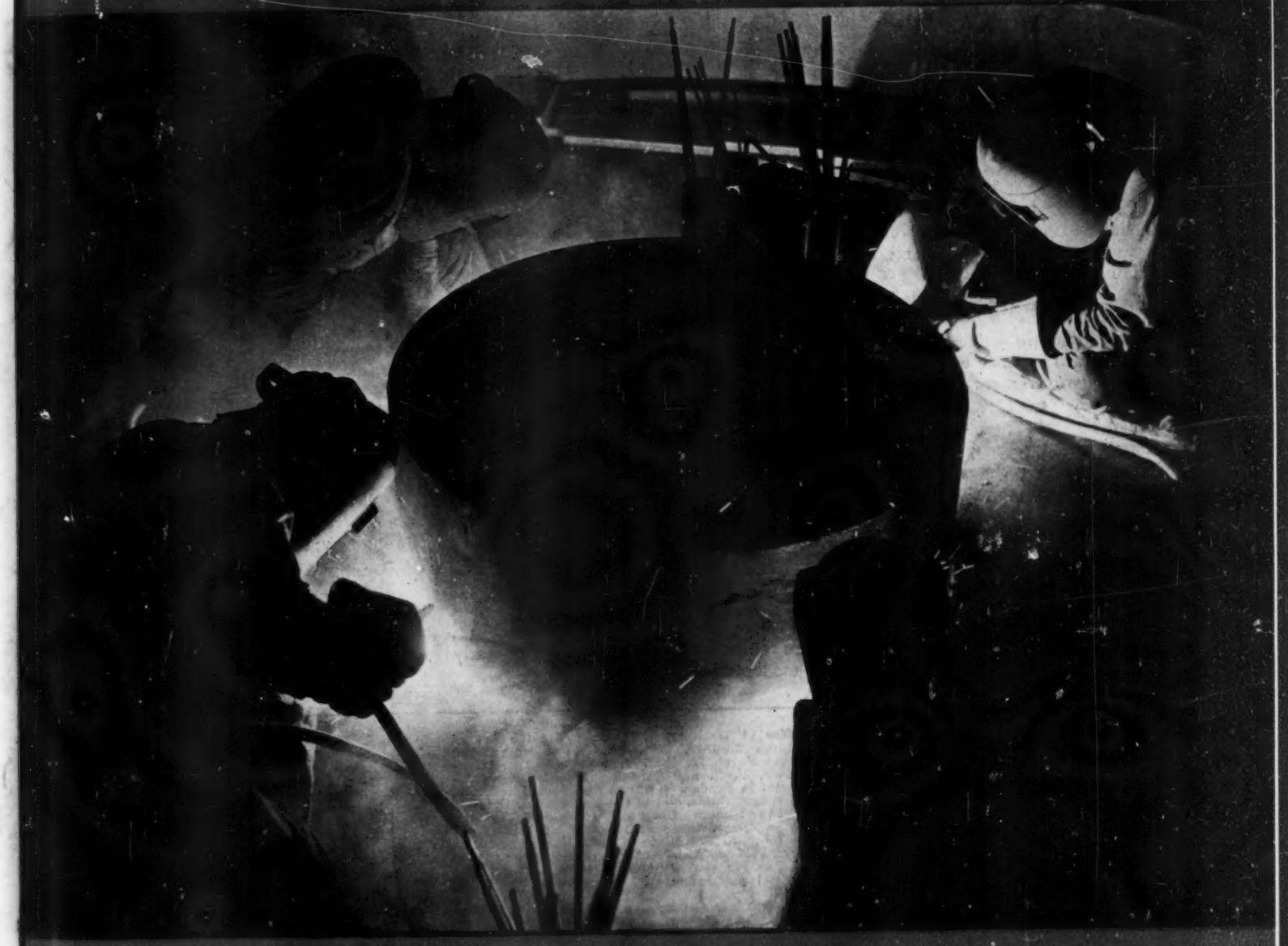
15¢

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • DECEMBER 5, 1942



Brewing Trouble for the Axis

See Page 364

A SCIENCE SERVICE PUBLICATION

Do You Know?

Mistletoe is a parasite which may kill its host tree.

The "long-lived" *elephant* actually has a shorter life than man.

Fourteen countries of the Western Hemisphere produce *coffee.*

Too little air in *tires* can make them wear out 50% to 70% faster.

Seventy percent of all occupational diseases are said to be *skin disorders.*

The word *"spinster"* is derived from the spinner of a single thread, while the word "wife" is related to "weave," using two or more threads.

The Government is investigating a mineral deposit in New Mexico which may prove to be a new source of the vital war metal *beryllium.*

The oil industry can save 46% of the *steel* necessary in drilling oil wells by adopting a new method which draws oil from two or more levels through a single well.

Fats and fatty oils, vital to man's diet, were consumed by Americans in 1940 at the rate of about 56 pounds per person, with another 28 pounds used in soap, paints, lubricants, etc.

Present-day *soil erosion* in South Dakota may have begun before the Ice Age, judging by the large percentage of young mammalian fossils found there recently, which presumably died of thirst

Question Box

Page numbers of Questions discussed in this issue:

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

Ordinary *hemp sacks,* treated with a toxic preservative to prevent moulding, are used as Army sandbags.

Salt is one of the five most important raw materials in the world, ranking with coal, limestone, petroleum and sulfur.

One of the newest Diesel type engines weighs only 1.8 pounds per horsepower, as compared to 100 pounds for early models.

The spread of *tuberculosis* in Sweden is being investigated by taking X-rays of every Swedish citizen.

"Felt" hats made of *redwood* bark are nothing new; North Pacific Indians wove their headdresses of cedar-bark fiber.

Cellulose hoods, which sealed peacetime bottles, are now used to protect open pipes and gas lines during war production.

SCIENCE NEWS LETTER

Vol. 42 DECEMBER 5, 1942 *No. 23*

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington, D. C. NOrth 2255. Edited by WATSON DAVIS.

Subscriptions—$5.00 a year; two years, $7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

Cable address: Scienserve, Washington.

New York office: 310 Fifth Avenue, CHickering 4-4565.

Entered as second class matter at the postoffice at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The Science Observer, established by the American Institute of the City of New York, is now included in the SCIENCE NEWS LETTER.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N. Y. C., PEnnsylvania 6-5566; and 360 N. Michigan Ave., Chicago, STAte 4439.

SCIENCE SERVICE is the Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Henry B. Ward, University of Illinois; Edwin G. Conklin, American Philosophical Society; J. McKeen Cattell, Editor, Science. *Nominated by the National Academy of Sciences:* R. A. Millikan, California Institute of Technology; Harlow Shapley, Harvard College Observatory; W. H. Lewis, Wistar Institute. *Nominated by the National Research Council:* Ross G. Harrison, Yale University; C. G. Abbot, Secretary, Smithsonian Institution; Harrison E. Howe, Editor, Industrial and Engineering Chemistry. *Nominated by the Journalistic Profession:* O. W. Riegel, Washington and Lee School of Journalism; A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Executive Editor, Sun Papers. *Nominated by the E. W. Scripps Estate;* Frank R. Ford, Evansville Press; Warren S. Thompson, Miami University, Oxford, Ohio; Harry L. Smithton, Cincinnati, Ohio.

Officers—Honorary President: William E. Ritter. *President:* Edwin G. Conklin. *Vice-President and Chairman of Executive Committee:* Harlow Shapley. *Treasurer:* O. W. Riegel. *Secretary:* Watson Davis.

Staff—Director: Watson Davis. *Writers:* Frank Thone, Jane Stafford, Marjorie Van de Water, Morton Mott-Smith, Glenn Sonnedecker. *Science Clubs of America:* Joseph H. Kraus, Margaret E. Patterson. *Photography:* Fremont Davis. *Librarian:* Page Secrest. *Business Manager:* Alvin C. Stewart. *Sales and Advertising:* Hallie Jenkins. Correspondents in principal cities and centers of research.

MEDICINE

To Humans From Cats

Atypical pneumonia, prevalent in recent years, is related to or the same as pneumonia in cats. Symptoms like those of influenza or grippe.

➤ THE ATYPICAL PNEUMONIA cases which have puzzled physicians for the past several years are related to or perhaps the same as a pneumonia which has afflicted cats during the same period. Evidence for this is reported by Dr. James A. Baker, of the Rockefeller Institute for Medical Research at Princeton, N. J. (*Science,* Nov. 20)

During the past year or so in the northeastern United States, when atypical pneumonia was attacking humans, cats have frequently been attacked by an infection variously called "nasal catarrh, influenza, or distemper," Dr. Baker reports.

The atypical pneumonia in humans has also masqueraded under symptoms suggesting influenza, grippe, or some similar ailment other than pneumonia, and has often missed being diagnosed as pneumonia, medical scientists believe.

The infection in cats, Dr. Baker found, is due to a virus that forms elementary bodies. Human atypical pneumonia is not caused by the pneumococcus and medical scientists have believed it is due to infection with a filterable virus.

The cat pneumonia virus, Dr. Baker found from tests with human and cat blood during and after the illness, "is the same as or closely related to the one causing some of the so-called atypical pneumonias in man."

Whether the humans got the pneumonia from the cats or the cats got it from their owners is not as yet clear.

"A number of instances of contact between sick cats and people who subsequently developed atypical pneumonia have been brought to our attention," Dr. Baker states. "For example, Dr. Francis G. Blake, of Yale University, observed an atypical pneumonia in a rural family in Connecticut which occurred where cats were sick with a pneumonia. Dr. C. W. Barber, of the New York State Veterinary College, noted the reverse, where a child sick with atypical pneumonia played with a kitten that later became sick. It may be of epidemiological interest that the disease in man and in cats is occurring simultaneously."

Science News Letter, December 5, 1942

MEDICINE

New Remedy Successful

Chemical used in treating African sleeping sickness, pentamidine, has trial reported in Lancet. Required only ten days.

➤ SUCCESSFUL use of a new chemical remedy for African sleeping sickness is reported by Dr. T. L. Lawson, of the Medical Services of Uganda. (*Lancet,* Oct. 24)

The chemical is 4:4 diaminodiphenoxypentone, with the trade name of pentamidine. Out of 53 patients whom Dr. Lawson was able to re-examine three months after treatment, 41 were clinically cured, three were much improved, four improved, and four unaltered or worse.

"As regards gland puncture, 100% cure could be claimed," Dr. Lawson reports, since no trypanosomes were found in the juice obtained by puncturing glands in the neck in any of the patients after the treament. Trypanosomes are the germs that cause African sleeping sickness and swollen glands are among the early symptoms.

Advantages of pentamidine, Dr. Lawson points out, are that it swiftly destroys the germs in the peripheral blood and in the gland juice; treatment is complete in 10 days instead of 10 weeks as with other drugs; and toxicity is extremely low. The effective dose for treatment is not more than half the poisoning dose and probably almost one-fifth the killing dose. The speedy results obtained are important both to the patient and from the preventive medical aspect.

On the debit side, Dr. Lawson states, is the lack of success with this drug when the central nervous system has become involved.

The drug is given daily for 10 days by injection into the patient's vein. Dr. Lawson concludes that, although 53 cases is a small number on which to determine the efficacy of a drug, pentamidine seems "probably the best drug so far produced for early cases of sleeping sickness."

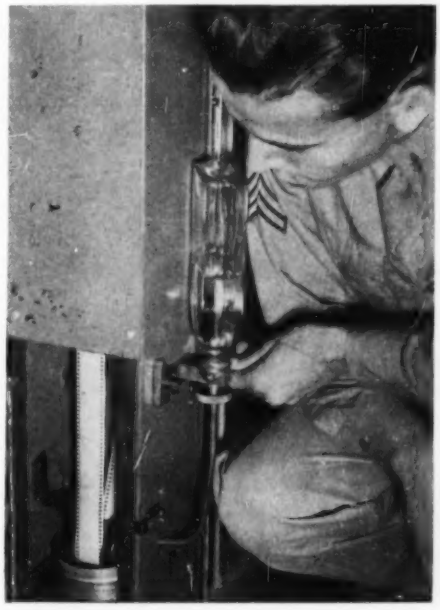
Science News Letter, December 5, 1942

PHOTOGRAPHY

Army Films Saved By Removing Scratches

➤ IMPORTANT ARMY FILMS which have been accidentally scratched are now being saved. These scratches sometimes appear on the nitrate base of negatives made by the Army because of the difficulty of handling films taken in the field. A method for removing these scratches from the nitrate base has been developed by the United States Army Signal Corps Photographic Laboratory, Army War College, Washington, D. C. The procedure has saved many thousands of feet of film which would be extremely difficult to rephotograph.

The scratched film is run through a tank of chemicals in a manner similar to the developing of movie film. It is then dried so that it will not curl excessively. The solution partially dissolves



SALVAGE—Important Army films which have been accidentally scratched are being saved by a method for removing the scratches.

the nitrate base and allows the scratch marks to flow smooth. The process is carefully timed because too much time in the solution would cause an excess of film base to dissolve and make the negative thin.

The Signal Corps Laboratory under the direction of Lieut. Col. R. C. Barrett has designed and put into operation the machine which automatically times the process of running the film through the scratch removing bath and drying it afterwards. The machine can process about two to four feet per minute.

Science News Letter, December 5, 1942

ZOOLOGY

Red and Violet Snow Due To Minute Forms of Life

➤ FIELDS of red and purple snow in the Northland are due to microscopic plants. These single-celled algae, one of the most primitive groups of living things, were investigated by Erzsébet Kol, Hungarian woman scientist working under a Smithsonian fellowship.

Her report of the vivid "blooms" in Alaskan mountain ranges has just been published in Washington by the Smithsonian Institution.

In this forbidding arctic environment, she found nearly 50 examples of the tiny plants living in almost infinite numbers on perpetual ice and snow.

Collecting living specimens, Miss Kol headed for her laboratory high in the Swiss Alps where she planned to cultivate and study this strange form of life.

War has now severed communication with Miss Kol. Except for news of the loss of her living specimens, no word has been received on how the war has affected the project.

Her previous reports indicated that some of these algae are very fussy about their home surroundings. One wouldn't live on ice. Another wouldn't live on snow. And there are striking changes in algae types depending on whether surrounding mountain slopes are acid or alkaline in composition.

This is probably due to their reliance on air-borne particles of decomposing and shattered rock for food. Dust dissolves slowly in the moisture on snow or ice surfaces, providing the minerals essential for life.

The snow and ice plants perhaps serve as the chief food for some other form of life, it is believed, which in turn supports higher forms.

Science News Letter, December 5, 1942

AGRICULTURE

Healthy Army in 1962

Recruits twenty years from now will have sound teeth and solid bones if fields where their food is raised are properly fertilized now.

➤ RECRUITS for the Army of 1962 (if we need one then) will have sound teeth and solid bones if farmers and dairymen of 1942 put the right fertilizers on their fields and take proper care of the soil. The health and strength of the coming generation lies in today's fields and pastures, Prof. W. A. Albrecht of University of Missouri pointed out before the National Industrial Chemical Conference in Chicago.

Soils are the halfway stage between rock in the mountains and silt on the bottom of the sea; mankind seizes upon this geologically brief interlude in the endless cycle of erosion to extract a living from this mass of mineral particles plus humus added to it by other living things. If his use of the soil is wise, man can slow down the erosional cycle to his own advantage; if he abuses the soil it takes revenge by hastening the erosional process and leaves him hungry and faced with a stone-bare cupboard.

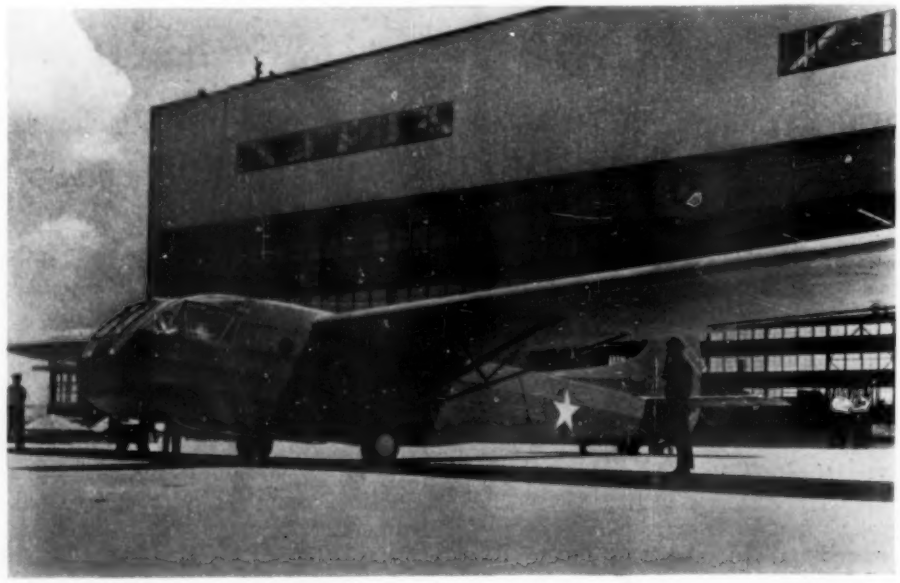
When soil "goes into a decline" it shows any number of warning symptoms before it is really ready to die. The speaker pointed out rising soil acidity, changes in the type of plants the soil will support, and various debilitating diseases in livestock pastured on the thinning range. A declining soil will not produce good crops of muscle- and bone-making plants; if an attempt is made to maintain total tonnage without regard to quality the new crops will have to consist more and more of "roughage" plants—bulky stuff with lots of woody tissue in it, but less and less of real food.

Prof. Albrecht suggested that one agricultural college's motto: "Our national wealth lies in the soil," might well be amended by the change of one letter: "Our national health lies in the soil."

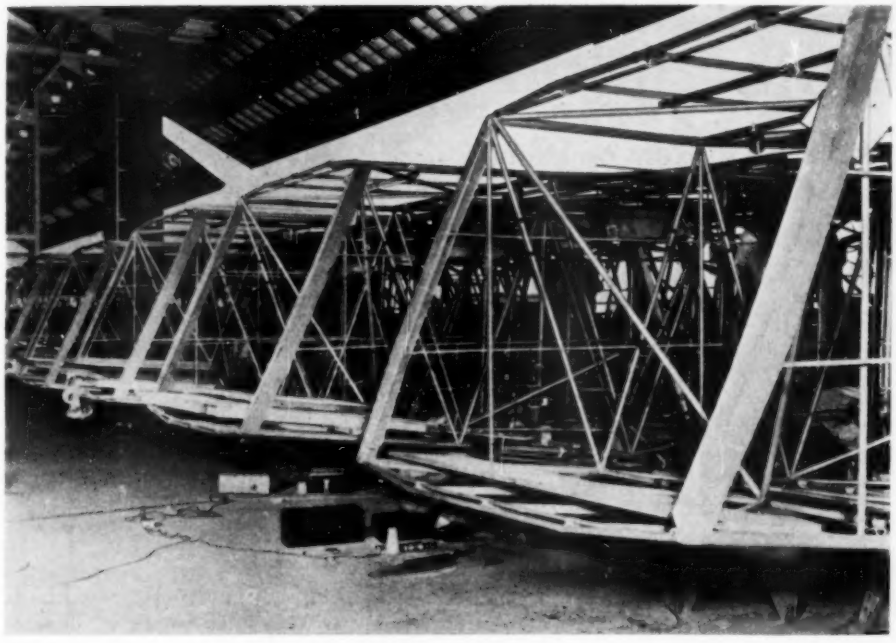
Science News Letter, December 5, 1942

Many Factors Affect Plants

➤ MANY FACTORS influence plants in their use of elements taken from the soil to produce nutritional value, Dr. L. A. Maynard of the U. S. Department of Agriculture pointed out. With the



GLIDER—This little motor-less craft will carry fifteen soldiers. It is the CG-4A transport glider, designed by the Waco Aircraft Company, of Troy, Ohio, under the direction of the experimental department, U. S. Army Air Forces, Wright Field.



SEGMENTS—Modern swift production for war calls for manufacture of the fuselage of the CG-4A transport glider in two segments, later slapped together. Here is a row of tail segments being produced at the Boeing Airplane Company plant.

same kind of soil nutrients available, but different rainfalls, two crops of bread wheat will have entirely different protein contents. The amount of ascorbic acid, one of the most important of vitamins, in tomatoes is powerfully influenced by the number of hours of sunlight per day received by the plants. Light intensity, as well as length of daylight period, affects the vitamin content of certain fruits and vegetables.

A great deal of research on this subject yet remains to be done, Dr. Maynard stated, and he emphasized: "Consideration needs to be given to yields of nutrients as well as to tons or bushels per acre, to nutritional quality as well as to market quality."

Science News Letter, December 5, 1942

MEDICINE

New Surgical Dressing

Sulfa drug film like a paper tissue is developed for use on burns, cuts and skin grafts. Its usefulness in war surgery is foreseen.

➤ A NEW KIND of surgical dressing for burns and wounds, expected to be of great use to our armed forces, has been developed by Dr. Kenneth L. Pickrell, of the department of surgery at Johns Hopkins University and Hospital.

It is a film which looks something like rough waxed paper but which carries a powerful wallop against germs in its 30% to 50% content of sulfadiazine.

These sulfa drug films have been used in more than 100 cases, about 50 of which were patients with burns, Dr. Pickrell reports. (*Bulletin, Johns Hopkins Hospital,* November.) In 30 of the burned patients, bacteriological studies showed no evidence of infection. In the other cases bacteriological studies were not made but no signs of infections were seen on inspection of the wounds and burned areas.

When used on burns, the burned surface and surrounding skin is first cleaned with a surgical detergent if there is gross contamination. The area is then washed with salt solution, sulfadiazine or azochloramid solution, and while the area is still wet the sulfa drug film is put on, over which a smooth, firm pressure dressing of gauze is applied. The sulfa film is left in place for three to five days, at the end of which time, in second degree burns, new skin will be forming.

In third degree burns and in wounds or sores with discharge, the film may be renewed as desired. Since the film is translucent, the surgeon can inspect the wound or burn without removing the film.

The sulfa film is made by preparing an emulsion of 3% sulfadiazine or 3% sulfanilamide, 2.5% methyl cellulose (this is one of the newer plastics materials), 3% triethanolamine and 0.5% sorbitol with 50% alcohol or acetone to make 100 cubic centimeters (about three ounces). This is sprayed on a smooth horizontal glass surface with a pressure gun or paint spray apparatus and allowed to dry, after which it is removed in a single sheet.

The sheets can be made any size, but at Hopkins they are cut in three-inch widths and rolled just like any bandage. They keep well and can be sterilized by dry heat. They are light in weight and can be packed easily in sheets, tablets or rolls.

Physicians who have seen them on visits to the Hopkins Hospital have been interested and enthusiastic about them and several of the larger commercial houses are beginning to prepare them. The films were developed following Dr. Pickrell's discovery that a solution of sulfadiazine in triethanolamine was effective in treatment of burns and his and other Hopkins doctors' successful use of this solution in combating sinus infection, complications of the common cold, irrigating infected wounds and sinuses, preparing the surgical site for operations around or in the eyes and various body openings, and for fighting infection in skin grafts. Certain disadvantages of this solution, such as slow drying time and the thinness and fragility of the film it formed, led to development of the stronger film with methyl cellulose.

Science News Letter, December 5, 1942

GENERAL SCIENCE

Northwest Scientists Cancel Their Meeting

➤ LATEST war casualty among scientific meetings is the Northwest Scientific Association, whose officers have voted to cancel plans for a forthcoming meeting. Research activities and grants will be continued.

Science News Letter, December 5, 1942

There is no staple *food* which cannot be grown in the Americas.

CHEMISTRY

Tapioca Substitute

It will be Leoti pudding and Leoti stickum on stamps if plans of farmers and agricultural scientists to find a homegrown substitute succeed.

➤ IT WILL BE LEOTI pudding, instead of tapioca, and Leoti stickum on stamps, envelopes and the like next year, if present efforts of prairie farmers, agricultural scientists and manufacturers succeed.

These groups have been working intensively since early spring to give America a homegrown substitute for tapioca and other imported root starches used in foods, in the textile industry and for making adhesives and plywood for interiors.

Leoti is one of several varieties of waxy-seeded sorghums that have been grown in the United States for syrup, grain or forage since 1854. Until recently there was no special use for the waxy seed itself. About three or four years ago, however, cooperative investigations at the Iowa Agricultural Experiment Station revealed that starch from waxy corn and sorghum had properties similar to those of tapioca and sweet potato starches.

Last spring, with war in the Pacific cutting off the root starches formerly imported from the Orient, agricultural officials in Nebraska and Kansas cooperated in locating supplies of pure seed of waxy sorghums and encouraged farmers to plant it.

Sorghum Difficulties

Waxy sorghum offers certain difficulties in the extraction and purification of the starch by usual mehods, U. S. Department of Agriculture officials point out. Unless the methods of manufacture and the quality of the waxy varieties are improved, the extraction of starch from sorghum seed is likely to be expensive. Despite these limitations, however, Department officials believe that waxy sorghums offer a hope for meeting immediate requirements for waxy starch during the present emergency. It is expected that most of the starch will be used for food purposes. Any surplus will go for adhesives.

Commercial waxy-seeded sorghum varieties in the United States are Leoti and McLean sorgo, certain strains of Gooseneck sorgo, and a brown-seeded grain sorghum called Schrock or Sagrain. Most of the waxy sorghum production in the United States consists of the Leoti variety grown for forage, largely in Nebraska. According to one story, Hoosier farmers were the first to grow this variety. Nebraska and other prairie states seem to have taken over Leoti production but Leoti is coming back to Indiana for processing at a mill famous for its fine cake flour, operated by General Foods. Sugar rationing having cut down somewhat on housewives' production of angel food and other cakes requiring fine flour, the mill has been largely turned over to Leoti processing.

Leoti is one of the real finds of the first war year of American agricultural science. It is the only satisfactory substitute of the imported starch that could be raised in quantity during the 1942 crop season. This season's harvest in south central Nebraska was estimated at some 500,000 bushels.

Named for Town

Prof. R. M. Sandstedt, chemist at the Nebraska State College of Agriculture, "discovered" the new crop. Leoti had been grown in a small way in a limited area in the state for some years, principally for fodder, to some extent also as a source of syrup. This sorghum variety was named for the town of Leoti, in Kansas, where it seems to have first appeared; but the cultivation center have long since shifted into Nebraska.

What gives it its peculiar value is the chemical constitution of the starch in the dull-coated, waxy-looking seed, which contrasts with the harder, shinier "finish" of ordinary sorghum seed. Incidentally, despite the name, there is no wax in the seed; it only looks waxy. The starch has the property of taking up quantities of water, to become the half-gelatinous, slippery stuff that many persons like as tapioca. Given a different chemical treatment, it also becomes a good adhesive, either for paper (as on stamps and envelopes) or for binding veneer sheets into plywood.

This capacity of waxy sorghum seed to furnish a good gummy substance is no new thing, Prof. Sandstedt declares. There are references to it in Egyptian literature. In ancient China, "slippery" puddings were made from it; they were rather special desserts, for festive occasions. It seems to be a genetic property that crops up from time to time spontaneously. Being a recessive trait, it is masked and covered up in hybrids, only to reappear later.

Corn shows the same tendency toward the production of waxy grained strains, which have starch of the same gummy properties. At present, U. S. Department of Agriculture geneticists and chemists are hard at work on a waxy corn, which is also considered as a possible replacement for lost "stickum" sources. However, waxy sorghum is a this-year's crop; waxy corn is still only a future possibility.

Kinship of Starches

Close kinship between the starches of the two waxy grains, which are botanically second cousins, is indicated further by their peculiar behavior in the presence of iodine. As everyone knows, ordinary starch turns blue or purple when heated with iodine; starch from waxy sorghum or waxy corn turns red.

At present, farmers are getting high enough prices for Leoti to pay them well for cultivating it. Whether this prosperity will continue after the war, when casava competition can be expected again, is a problem for the future. Prof. Sandstedt is hopeful that cultivation costs and manufacturing efficiency can be pushed to a point where the domestic crop can hold its own against the foreign product.

Leoti, like other sorghums, is a good crop for parts of the country where drought may occur at any time during the growing season. It is also a good soilbinder, holding fields against erosion.

Science News Letter, December 5, 1942

GEOLOGY

Geologist Named to Receive Penrose Medal

➤ DR. C. K. LEITH of the University of Wisconsin has been named the Penrose Medalist for 1942 by the Geological Society of America. The award will take place during the abbreviated annual meeting of the society to be held in New York the week after Christmas, because of the cancellation of the full meeting scheduled for Ottawa.

Dr. Leith has been working during the war effort with the War Production Board, the National Academy of Sciences and other federal agencies.

Science News Letter, December 5, 1942

PHYSICS

Standardized Colors

While theoretically the human eye can distinguish ten million colors, 319 names are enough for everyday purposes.

➤ FOLLOWING the Victory bicycle and the Victory typewriter, one of the newest subjects of standardization is color itself.

The new war standards to specify and describe color were explained at a conference of the American Standards Association, by Dr. Deane B. Judd, physicist of the National Bureau of Standards, Prof. Arthur C. Hardy of Massachusetts Institute of Technology and Dr. Lloyd Jones of Eastman Kodak Company.

While research technicians have been measuring color by means of spectrophotometers for almost half a century, said Dr. Judd, there was no public agreement on how colors should be described. The shade known to colorimetrists as "9YR 7.2/4.5", for instance, might be called orange by the housewife, apricot by the dress manufacturer, yellow by the paint industry, and red by the druggist.

The new standards adopted in June include a system for designating 319 colors with consistent names, based on the Munsell Color Standard. According to this system, worked out by Dr. Judd and Kenneth L. Kelly at the National Bureau of Standards, "9YR 7.2/4.5" will henceforth be called "weak orange" for practical purposes, since it falls within that range. While theoretically the human eye can distinguish about ten million different colors, 319 names are ample for everyday purposes. But for specifying color, or when a more precise description is required, technicians will continue to use numbers.

The color on the SNL cover this week is brilliant green, about 4G 5.9/8.5.

This standardization of easily understood names such as reddish brown, olive brown, olive green, etc., was originally undertaken to meet the needs of drug chemists and pharmacists. But now that it has been adopted as a part of the American War Standards for color it will be a boon to practically all industrialists and merchants, including of course the ultimate consumer. Adopted by the Textile Color Card Association, the term "pinkish grey" will mean more to clothing buyers and wholesalers than "Algerian sand." However, consumers will doubtless continue to buy Algerian sands and Morocco scarlets, since the new specifications make it clear that they are not intended to replace names used in sales promotion.

The new standards coordinate these four principles of color specification and description:

1. The spectrophotometer shall be recognized as the basic instrument of color standardization.
2. Specifications shall be derived from the color system adopted in 1931 by the International Commission on Illumination.
3. For the popular identification of color, material standards shall be used according to the Munsell system.
4. A descriptive name, derived from the Munsell notation, is recommended wherever general comprehensibility is desired and precision is not important.

Science News Letter, December 5, 1942

PRIZE PICTURE — This photograph of a Red Cross Nurse's aide bathing a baby in Bellevue Hospital, New York City, received an award in the American Red Cross photograph contest.

LANGUAGE

Mine of Linguistic Science In Scattered Literature

➤ A MAJOR source of materials for use in the study of North American Indian languages, until now unavailable to scientists, exists in scattered publications and manuscripts used by missionaries in their work through the immense territory stretching all the way from Labrador to the Pacific coast and north to the last inhabited islands of the Arctic. At the meeting of the American Philosophical Society in Philadelphia, Pére Arthème Dutilly, missionary-scientist of the Oblate Missions and the Catholic University of America, described this hitherto neglected scientific resource and told what he is doing to round up the scattered material.

Missionaries of all creeds make more of an effort to learn the language of the tribes they work with than do traders, explorers and officials, the speaker declared. They stay longer with the people, and have more difficult subjects to discuss.

From the very beginning of the Northern missions, Pére Dutilly continued, priests and ministers have made a practice of reducing the languages of the various tribes to writing. There are several special systems for expressing the Indian languages, one or two of them very successful. In these written forms, the missionaries have produced translations of the Bible, prayer and hymn books, catechisms and other things they needed for their own work. Most of them are not generally known; some have never even been printed, but exist only in mimeographed form, perhaps with the amendments and marginal notes of several different workers on them.

Pére Dutilly, who has just returned from his tenth summer in the Far North, has undertaken to get all such materials together, making possible their reproduction in forms useful to students of languages. So far, he has assembled 145 published works and reproductions of 52 unpublished manuscripts, representing 21 distinct Northern Indian languages and dialects, plus Eskimo. This work has been sponsored by the American Philosophical Society.

The past summer's trip was a "short" one for Pére Dutilly, taking him only as far as James Bay, where he worked in the Cree and Montagnais Indian areas. His principal interest is in botany, and he brought back a collection of someing over 1,200 sheets of pressed plants.

Science News Letter, December 5, 1942

MEDICINE

Hands Called Unimportant In Spread of 'Flu

➤ DISCOVERY that the influenza viruses type A and type B die in a few minutes if put on human skin, such as the palm of the hand, and allowed to dry there, was announced by Commander Albert Paul Krueger, in command of Naval Laboratory Research Unit No. 1 at the University of California.

"Virus solutions so strong that a teaspoonful would kill half a billion mice lost all disease-producing capacity within 10 minutes," Commander Krueger, formerly professor of bacteriology at the university, stated.

"These results emphasize again the importance of tiny virus-containing droplets sprayed into the air when one sneezes, coughs or even talks vigorously, as a means of spreading influenza. Hand to hand distribution of the virus and eventual hand to mouth transfer would appear to be unimportant hazards."

Science News Letter, December 5, 1942

CHEMISTRY

Millions of Gallons of Chemicals To Be Reclaimed

➤ MILLIONS of pounds of scarce chemicals, millions of gallons of war-essential oils and solvents, will be saved by methods demonstrated in the WPB chemical salvage exhibit which opened at the National Chemical Exposition.

"We cannot afford to waste our precious chemical resources," declared S. Donald Perlman, executive chemical director of the Industrial Salvage Section, Conservation Division, WPB.

"Too often these chemicals are thrown away after a single use. If this program is willingly entered into by every commercial user of solvents and oils we will have succeeded in making available for war production reclaimed dirty or contaminated solvents which in the past have been discarded as waste."

To users of chemicals and solvents who are in attendance, the exhibit indicates the urgency of putting an end to this waste in their plants.

A feature of the exhibit is a series of small-scale models which demonstrate recovery of oversprayed paints. Behind the jeeps, shells or other equipment being painted, a curtain of water catches the overspray. This is collected in a trough, precipitated as a sludge, and then reclaimed. Improved and widened application of the process is already saving nearly a third of the paint formerly wasted in many branches of industry, WPB officials report.

Other sections of the exhibit show the reclamation and refining of lubricating and cutting oils and the recovery and reclamation of industrial solvents.

Current solvent reclamation can be increased from 50% to 75%, it is indicated by conferences held between Mr. Perlman and industrial executives.

Such chemicals, formerly wasted and often difficult to replace, can often be reclaimed for a few cents a gallon, only a fraction of their original cost.

Science News Letter, December 5, 1942

ASTRONOMY

Brightest Star Is Twins And Each One a Giant

➤ EVIDENCE that S Doradus, a star 600,000 times brighter than the sun, is a double star in which one star revolves around the other in a period of 40 years, has been presented by a Harvard astronomer, Dr. Sergei Gaposchkin, to the American Association of Variable Star Observers. The star, brightest in the sky except for the brief-lived super-novae of far-off galaxies, is located in the Large Magellanic Cloud, invisible in the United States. Dr. Gaposchkin's work has been done on photographs taken at Harvard's southern station at Bloemfontein, South Africa.

S Doradus has long been known to be a variable star, but the cause of its fluctuations was unknown. Dr. Gaposchkin has concluded that, as the two stars revolve, they alternately pass in front of each other as we view them, and thereby produce eclipses during which their total light is reduced noticeably. These eclipses occur regularly at 40-year intervals, thereby determining the length of time in which the stars revolve. From the resulting light curve, Dr. Gaposchkin finds that each star is about the same size as the orbit of Saturn—that is, about 1,800 million miles in diameter. This makes them among the largest stars known, which is to be expected from their high luminosity.

Often we hear of Sirius, the Dog Star, as the "brightest star," which it is as far as apparent brilliance goes. But S Doradus has an intrinsic brightness 600,000 times the sun's, while Sirius is only 25 times as bright as the sun. Of course, the Dog Star is very close—8.8 light-years distant, while S Doradus is about 95,000 light-years away.

Science News Letter, December 5, 1942

IN SCIENCE

MEDICINE

Tests for Virus Diseases Described at Meeting

➤ AID FOR fighting epidemics of influenza, infantile paralysis and 22 other virus-caused diseases was presented by Dr. S. Edward Sulkin and Dr. Carl G. Harford of the St. Louis Health Department and Washington University School of Medicine, before the meeting of the American Public Health Association in St. Louis. Latest laboratory tests diagnosing these diseases, so that after the first few cases health officers will know exactly what epidemic they are facing and can take appropriate action, were described. The doctors made it clear that the tests had been developed by other scientists and their part was to bring the scattered information together for health department laboratory workers attending the meeting. Up to the present time the only virus disease which health department laboratories have been diagnosing has been rabies. No specific test for the common cold exists, Dr. Sulkin said.

Very new is a test for a virus-caused venereal disease, lymphogranuloma venereum.

Importance at this time of assisting employed women to avoid having unwanted children without resorting to abortion was stressed by Dr. Eva Dodge of the Alabama State Health Department. In one large industry a recent survey has shown a very high pregnancy rate among married women employees and also showed that many of these women resorted to life-endangering abortion to avoid having more babies than they could support and care for.

In New Mexico the wife of an American soldier can get medical and hospital care for herself and child when she has a new baby, or for a sick infant, by applying to the State Health Department. Details of this plan for assisting the wives and children of our fighting men were reported by Dr. Stuart Adler of the New Mexico State Health Department. Hospital and doctor bills are paid by the state with funds from the U. S. Childrens Bureau.

Science News Letter, December 5, 1942

NE FIELDS

PALEONTOLOGY

Grapes Grew in U. S. A. 19 Million Years Ago

➤ NOAH MIGHT have got into his little difficulty with the juice of the grape some 19 million years before he did, had he landed on the mountains of Nevada instead of on Ararat. Grapes grew in what is now the western United States away back in the Miocene times, long before there were any human beings, and the only creatures who might have appreciated them were animals like humpless camels, long-tusked mastodons and giant hogs.

Evidence of their existence then is supplied by a bit of petrified grapevine found in western Nevada. It is the first fossil of its kind to be found in this country, though fossil grape leaf imprints have previously been reported.

The piece of fossil vine is about 2½ inches long and a little over half an inch in diameter. It has the bases of two stout tendrils wrapped around it, and its internal structure has been so well preserved that the pores in the wood and the pith-rays are plainly visible.

The specimen, which was sent to the National Museum by Mark M. Foster, of Denio, Ore., has been studied by Dr. Roland W. Brown of the U. S. Geological Survey. In the new issue of the Journal of the Washington Academy of Sciences it is given the scientific name, *Vitoxylon opalinum*.

Science News Letter, December 5, 1942

INVENTION

Propeller Blades Revolve Reversely

➤ A PROPELLER, whose two single blades revolve in opposite directions without racking the aircraft to pieces, is the invention of Gage W. Tidd of Willow Grove, Pa. (U. S. Patent 2,297,815). The rights have been assigned to the Autogiro Company of America.

A single propeller rotating in one direction sets up a reaction which would rotate the aircraft the other way if not resisted. One way to do this, is to mount two two-bladed propellers on one shaft and rotate them in opposite directions. This is okay for airplanes, says Mr. Tidd, but for the horizontal lifting propeller of a helicopter or an autogiro, with its long blades, four blades are too many. So he removes two of them.

But a single blade swinging around would yank the engine after it in a smaller following circle. Hence there must be a counterweight on the other side of the shaft just as for an engine crank. But here, Mr. Tidd finds, it is not sufficient to provide that the center of gravity of blade and weight shall coincide with the center of the shaft, which does very nicely for an engine crank. The resistance of the air to the long rotating blade differs greatly from that offered to the stumpy counterweight. This sets up a new force which rocks the engine from side to side.

To counteract this new force, Mr. Tidd either uses a second counterweight a quarter way around the shaft from the first one, or displaces the original counterweight a bit to one side so that the center of gravity of blade and weight falls a little to one side of the center of the shaft. By proper adjustment, the centrifugal force of this unbalanced weight can be made to counteract the differential air resistance, and the propeller runs smoothly. A little point like this often spells the difference between failure and success.

Science News Letter, December 5, 1942

CHEMISTRY

Army Raincoat Saves 1¾ Pounds of Rubber

➤ A NEW featherweight Army raincoat weighing 1½ pounds less than the old model, and saving 1¾ pounds of rubber in the making, captured attention at the National Chemical Exposition in Chicago. Other war-important items on display included rayon "bubbles" for filling life preservers and for heat insulation, plastic buttons for uniforms, a synthetic insecticide replacing the pyrethrum we used to get from Japan, and synthetic bristles for long-wearing paint brushes.

Many other all-American "ersatz" materials were shown—most of which are turning out better than their war-banished predecessors. In all, 32 American chemical firms participated in the show, which was arranged by *Industrial and Engineering Chemistry*, official publication of the American Chemical Society.

Science News Letter, December 5, 1942

SEISMOLOGY

Earthquake Makes Repeat Visit to Coast of Ecuador

➤ AN EARTHQUAKE, one of several to strike in the same general region since last spring, shook the Pacific ocean bottom off the coast of Ecuador early on the morning of Thursday, Nov. 19, U. S. Coast and Geodetic Survey seismologists stated after examining records transmitted telegraphically through *Science Service*. Last May 14 there was a shock centering at the same place causing considerable destruction on shore.

The epicenter was calculated as in latitude 1 degree south, longitude 81 degrees west. Time of origin was 4:51 8 a.m., EWT. Stations reporting were those of the Jesuit Seismological Association at Fordham, Georgetown and St. Louis Universities, and the observatory of the U. S. Coast and Geodetic Survey at Tucson, Ariz.

Science News Letter, December 5, 1942

PSYCHIATRY

War Reduces Suicides by Changing Mental Outlook

➤ BENEFICIAL by-product of war is the change in mental outlook which reduces the number of suicides, statisticians of the Metropolitan Life Insurance Company point out.

The death rate from suicide among the company's policy holders this year is about the same as last year and is, with one exception, the lowest on record.

England and Germany have also both had decreasing suicide rates since the war. In England the rate fell consecutively from year to year between 1939 and 1941 with the 1941 rate approximately 15% below that of 1939. The opening months of war in 1939 saw a sharp fall in the number of suicides. The most recent German figures likewise show a fall of 30% from 1939 to 1941 in the suicide rate.

In our own country the first World War also caused a decline in the suicide rate. It dropped more than 50% between 1915 and 1920, and has never returned to its pre-World War level, not even during the economic depression.

Reasons for the universal decline in suicide rates during wars are: 1. Increase in incomes; 2. Change in mental outlook. Petty, personal complaints and difficulties of the individual are forgotten in the urgent desire to help the nation in a time of crisis.

Science News Letter, December 5, 1942

NUTRITION

Soybean Boom

Armed forces and Lend-Lease buy soy products in great quantities. Increased use on American tables is predicted. This year's harvest is big.

By GLENN SONNEDECKER

➤ RUBBER SUBSTITUTES, cloth, high-protein food, plastics and vegetable oils are just a few of the manifold guises of the soybean. About 200 million bushels of beans are now roaring into hoppers of American processing plants to produce these and other products.

It's a new crop to many farmers. War has shot plantings up to 14,000,000 acres.

The soybean is one of the oldest crops used by man, however, being described in Chinese writings nearly 3,000 years before Christ.

In this country, production has been slow in developing. Now great fields of the legume are being harvested in the Midwest and South. Almost three-fourths of the crop is in Indiana, Illinois, Iowa, Ohio and Missouri. Of these the biggest producer is Illinois.

Flaxseed, cottonseed and cocoa mills have been converted to help handle the fall harvest.

Uncle Sam considers soybeans so important as a source of oil that a 40% increase in production was requested with a guaranteed market price.

Over 60,000,000 pounds of soya flour and grits have been purchased by the Agricultural Marketing Administration for shipment to our allies and for school lunches. Overseas, soy is used in meat products, baked goods, soups, ice cream and milk substitutes.

In Army Rations

The government is also adopting soybean products as part of the rations for the armed forces. So far, Army purchases have been confined to flour. The Marines are also using it in this form.

Wider usage has been hampered, asserted Colonel Rohland A. Isker of the Quartermaster Corps Subsistence Research Laboratory, because manufacturers threw soy products on the market that had not been scientifically prepared. This situation is being remedied.

From China, Java, India and other Far Eastern countries the Department of Agriculture has brought 2,500 distinct types of soybeans. Scientists experimented with these in the laboratory, grew them in test fields, changed them. Garden varieties have been developed which do not have the objectionable taste formerly present.

Other research has developed debittering methods to improve the flavor of field varieites. Over sixty patents have been granted on this process alone.

The Army is now issuing a specification relating to soy products of many types.

"Up to the present time," Col. Isker explained, "the principal use by the Army of soybean flour has been in our K biscuits. The principal function underlying its use in this product is to provide as complete a non-meat protein as possible."

The Army will also be using soya in pork link sausages, bakery goods and macaroni products, it is reported.

Millions of men will thus be introduced to soybean foods through the Army. When we return to normal conditions, it seems likely that soybeans will become an accepted part of the American diet.

Germans Use Them

The Germans have used soybeans rather extensively in their diet for a number of years.

The High Command has even issued a German Army Soya Cook Book. A copy in the possession of the American Soybean Association reveals many interesting recipes.

One recipe which apparently appeals to German taste, is a soup containing beer, flour, and soya. A more conventional soup is made of beef, vegetables, flour and soya.

Most vegetable dishes used by the German Army contain soya in varying amounts. Typical directions read: "Mix with cold water, add to the vegetable, and let boil up briefly."

Soya flour is used by them to make meat go farther and as a means of economizing on fats. It is an egg substitute, used as a binder for dishes such as dumplings and pancakes, and as a thickener for gravies and sauces.

Mixed with water, it is a substitute for whole milk in cooking. The German book points out that this is especially important during field operations.

Only salads and fruit dishes of the German Army cookbook seem to be completely without soy flour.

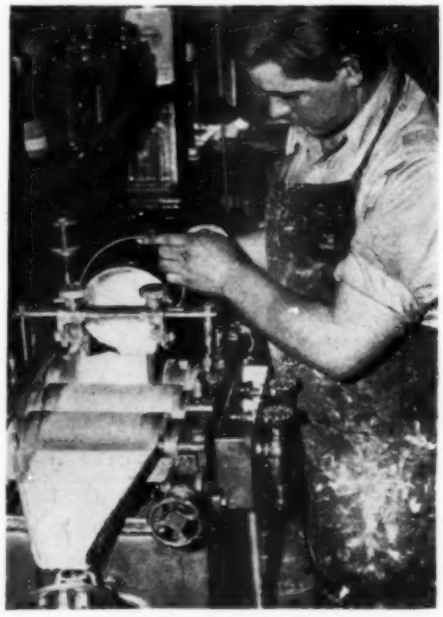
A similar expansion of the uses of soybeans can be expected in the United States, according to authorities.

"Next year the statistics on soy products for this year will look small," Donald S. Payne, senior technologist of the Agricultural Marketing Administration, declared at the recent convention of the American Soybean Association at Purdue University.

Although soybean products on American tables will soon be common, it is expected, few are now available at your grocers.

"The Agricultural Marketing Administration has inaugurated a new program to stimulate and foster the use of soya products, and this move clearly shows the government's recognition of their high food value," Mr. Payne pointed out. "The new program is designed to make this low-cost food available to the people throughout the United States as soon as possible."

Soybeans contain a nearly complete



A LABORATORY worker is shown grinding paints in soybean oil. Scientists are continuing to find new uses for the versatile soybean. This is an official U. S. Department of Agriculture photograph.

***SOYBEAN HARVEST** this year, totaling over 200 million bushels, will have many uses in the war effort. This is an official U. S. Department of Agriculture photograph.*

protein and a greater quantity of available protein than any other plant. Supplemented by other foods, soybeans can substitute for meat.

Soya sausages are now being shipped abroad. The sausages contain about 20% soybean flour. They are said to have excellent flavor and higher protein content than all-meat sausages. They do not "fry away" nearly as much as ordinary sausage, often yielding over a fourth more of the finished food. Beans are used alone, either baked, boiled or in stews.

Companies who packed soy soups for lend-lease are now experimenting with their domestic use in this country.

Manufacturers are putting soya flour in cereal breakfast foods. Containing up to 20% flakes or grits, these products are being shipped lend-lease to Russia and other allied countries.

A similar product may be on the shelves of American retail stores before winter is over, suggests M. L. Wilson, assistant director of Defense Health and Welfare Service in Charge of Nutrition.

The British are buying large quantities of soybean flour sausages, and grits, Mr. Wilson reported.

High-fat soya flours are used principally in baked goods, blended ith wheat flours. Ordinary flour is defi ent in some amino acids that are abundantly present in soybeans, according to Dr. D. Breese Jones of the Bureau of Agricultural Chemistry and Engineering.

"Studies recently conducted in our laboratory on the comparative growth-promoting values of the proteins of soybean, peanut, cottonseed flours, and also on their values for supplementing the proteins of wheat and patent wheat flour, have given some rather striking results," he told the American Soybean Association meeting.

Satisfactory growth depends on the ten essential amino acids being present in the diet. This remains true no matter how many vitamins or minerals may be present in bread.

"The results of our experiments show that, even after enrichment with eight vitamins and twelve mineral elements," Dr. Jones reported, "the growth-promoting value of white flour can be increased . . . fourfold with soybean flour (10 parts)."

Commercial Laboratory Research

Much research is also being done in commercial laboratories. Dehulling, debittering, and, in some cases, degerminating have been employed. Temperature control during processing was found to play an important role in both the nutritional and physical qualities of the finished product.

Several enzymes of the starch, protein and fat-splitting types are present. Scientists learned how to use these enzymes to good advantage or to destroy them when necessary.

Oil obtained from soybeans can be used to replace the vegetable oils and fats formerly imported. This is a primary reason why the government has promoted the soybean program.

The rubber substitute, Norepol, is probably the greatest potential utilization of soybean oil, H. T. Herrick, director of the Northern Regional Research Laboratory of the Department of Agriculture, reported to the American Soybean Association meeting.

"This process was deemed of such importance in the war effort of this country," Mr. Herrick said, "that a secrecy order has been placed on it. . . . Suffice it to say that Norepol, while entirely different in composition from either natural rubber or the synthetic rubbers, has properties which will enable it to be used in many of the products in which natural rubber has been utilized in the past."

Plastics have also been produced from soybean meal. Automobile distributor parts, steering wheels and car accessories are a few examples.

Oils were extracted to make paints.

The protein was converted into fiber having many of the characteristics of wool. Developed as an upholstery fabric, it may also be used for clothes and blankets.

Science News Letter, December 5, 1942

● RADIO

Saturday, December 12, 1:30 p.m., EWT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

William W. Gergoffen, of the U. S. Forest Service will tell how the war has affected Christmas greens.

Monday, December 7, 9:15 a.m., EWT; 2:30 p.m., CWT; 9:30 a.m., MWT; and 1:30 p.m., PWT

Science at Work, School of the Air of the Americas over the Columbia Broadcasting System, presented in cooperation with the National Education Association, Science Service and Science Clubs of America.

"Seeing the Unseen" will be the subject of the program.

INVENTION

Robot "Sniffer"

New device secures atmosphere samples in remote corners of airplanes where human inspectors can't reach and detect gasoline vapor fire hazards.

➤ ABATEMENT of fire danger from gasoline vapor in remote corners and glory-holes of airplanes is the objective of an invention by F. J. Schirm of Hoboken, N. J., on which he has just received U. S. patent 2,302,061 from the U. S. Patent Office. The device might be characterized as a robot sniffer, getting its multiple nose into parts of a plane no human inspector can reach even on the ground, much less while in flight.

Basically, it consists of a suction pump from which slender tubes lead to all parts of the plane where dangerous vapors are likely to accumulate. The indrawn atmosphere samples are passed successively through a combustion chamber. If any of them are getting near the ignition point, the heat of their combustion changes the conductivity of a wire passing through the chamber, and the resulting change in current operates a relay to throw a switch, turning on a warning lamp.

While the device is intended primarily for use in airplanes, obviously adaptations of it can be used in other places, such as factories, refineries, ships' holds, etc. Rights in the patent are assigned to the Davis Emergency Equipment Company of New York.

Science News Letter, December 5, 1942

Plastic Ammunition Belt

➤ ANOTHER INVENTION of military importance, among the 745 on which patents were issued recently, is a machine-gun ammunition belt composed of ring-shaped plastic links. Linked machine-gun belts have come into wide use of recent years, but all of them have been made of metal, which of course creates a shortage somewhere else, besides adding to the weight carried in such critical places as fighter planes. Substitution of plastic links releases this extra metal for uses where only metal will serve.

The inventor of the plastic link, L. L. Berry of Erie, Pa., has received patent 2,302,595, which he has assigned to the Erie Resistor Corporation.

Science News Letter, December 5, 1942

Visor for Army Helmets

➤ STILL ANOTHER warlike invention is a visor for modern helmets intended to give protection for the wearer's eyes, and making present-day warriors look more than ever like ancient Roman gladiators, at least so far as their heads are concerned. This device, on which patent 2,302,231 has been granted, was developed by M. J. O. Lobelle of Langley, England. The visor, states the inventor, may consist either of a light plate of metal with numerous perforations or of a veil-like curtain of chain mail mounted on a hinged frame. Mr. Lobelle's invention, which pertains particularly to the manner of hinging, is assigned to the Fairey Aviation Company, Ltd.

Science News Letter, December 5, 1942

PHYSICS

Scientists Who Explore Submicroscopic World Meet

➤ FIRST MEETING in history of the new group of scientists who explore the submicroscopic world with the electron microscope was held at the National Chemical Exposition in Chicago.

Representatives were present from about 40 laboratories having the machines which magnify from 20 to 50 times as powerfully as an ordinary light microscope.

Discussion indicated that the revolutionary microscopes are being used for important war work. New techniques make it possible to examine war metals and other opaque objects. New facts have been discovered about blood cells. Other reports covered examination of rubber, cellulose, powders, oils, etc.

It is expected that this first meeting will lead to a new permanent organization of the group.

Science News Letter, December 5, 1942

ENGINEERING

Welded Ships Are Superior In Withstanding War Blows

See Front Cover

➤ BUCKLED plates and framing on war-scarred ships in drydocks for repairs now often show no leakage and are sent on their way. Welding is the reason. On old-type riveted ships, many of these minor casualties would be laid up in drydock for repairs, David Arnott of New York City asserted at the meeting of the Society of Naval Architects and Marine Engineers.

The rat-a-tat-tat of the riveting hammer is therefore disappearing from the country's shipyards. Rapid extension of the welding method is being made to the larger ships and is now in universal practice on smaller type vessels and Liberty ships.

Cover of this week's SCIENCE NEWS LETTER is an official Maritime Commission photo, showing welders working on a turbine gear blank for a victory ship.

War has speeded adoption of the method, but with the coming of peace Mr. Arnott believes that the all-welded ship will hold her own except perhaps for the very largest types.

Cracks have occasionally developed in welded ships. But tests show that such difficulties are due to unsuitable materials, use of the wrong welding sequence, or working in cold weather, especially when there has been a sudden drop of temperature.

Scarcity of experienced welders has been a problem, Mr. Arnott reports. Government and private agencies have both established new schools and sponsored expansion of existing facilities. Use of automatic welding machines has also played a part in relieving the shortage of welders, as well as saving time on jobs for which this method is fitted.

Science News Letter, December 5, 1942

• New Machines and Gadgets •

A NEW GADGET prevents the annoyance of typing down to the bottom of a page without leaving a decent margin. A little numbered drum is inserted between the turning knob and roller and set to indicate the number of typewritten lines desired. As writing progresses, the drum registers the number of lines written and the lines that you can still get on the page. When the bottom margin is reached, a spring snaps the drum back to the original position.

Science News Letter, December 5, 1942

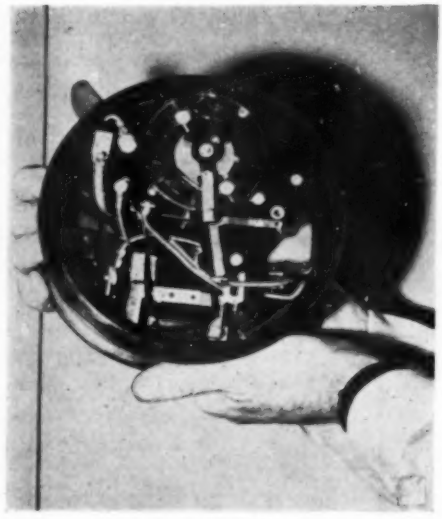
THE NEW OCD hand fire extinguisher is made almost entirely of nonstrategic materials. The pump, instead of being made of brass, is made of porcelain coated steel tubes. Pistons, stuffing box and valves are made of plastics. Old copper valve balls are replaced by glass marbles. Hose is made of reclaimed rubber with a plastic nozzle. The galvanized iron tank holds four gallons of water — the best all-round and most plentiful fire extinguishing material during air raids.

Science News Letter, December 5, 1942

RAYON ROPE "collars," or seals, have been developed for the shafts of pumps and hydraulic machines, replacing the flaxen rope formerly used for this purpose.

Science News Letter, December 5, 1942

PRIVATE AIR RAID SIGNALS can be sent to wardens by means of the new device shown in picture, which is plugged into the ordinary house current and operated by a special control board at the power station. Four different audible and visible signals can be sent. After a warning buzz, a visible dial, lit by a small electric bulb, flashes the proper color: yellow for preliminary caution,



blue for advanced caution, red for air raid, and white for all-clear. The device releases telephone lines for other purposes.

Science News Letter, December 5, 1942

A NEW KIND of plastic replica for the examination of opaque objects in the electron microscope, showing the surface features in positive instead of negative relief has been developed. An impression of the surface of the object is first made with a plastic that softens with heat. Polystyrene was found best of several plastics tried. Silica is then evaporated onto the plastic mold, forming a thin glassy film which is afterwards removed with a solvent. This replica shows the hills and valleys of the original specimen naturally, instead of the reverse as in all previous replicas.

Science News Letter, December 5, 1942

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 133.

PSYCHIATRY

Signs of Mental Sickness Should Be Taught M. P.'s

➤ TEACHING the military police to recognize signs of incipient mental and emotional sickness in able-bodied soldiers is one of the war aims of the National Committee for Mental Hygiene, Dr. George S. Stevenson, medical director of the committee, reported at its annual meeting in New York.

The M. P.'s and also Red Cross workers, physicians in the armed services, company officers, chaplains, USO, Special Services (morale), and instructors are in a position, Dr. Stevenson said, to see the signs of an impending break in mental health and to see that the soldier gets special attention before he reaches the stage of serious mental sickness requiring hospitalization.

"At Fort Monmouth," he said, "a mental hygiene unit has been established as an intermediary station between the able-bodied and the hospital and we have been pleased to lend it such resources as we have in the furtherance of its effort."

Science News Letter, December 5, 1942

BIOLOGY

Awards Established to Further Research on Cells

➤ CREATION of two new prize awards for research adding to knowledge of factors affecting the growth of cells with particular reference to human cancer is announced by Dr. William J. Robbins, chairman of the National Science Fund of the National Academy of Sciences.

The prizes are to be known as the Charles L. Mayer Awards.

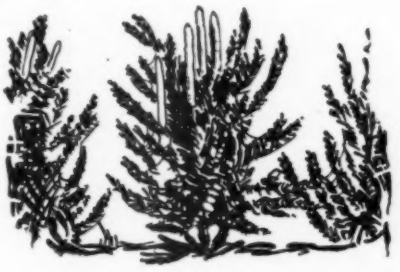
"One prize of $2,000 will be awarded for a contribution published in 1942 or submitted in manuscript to the National Science Fund," Dr. Robbins stated, "and a similar prize in 1943. The Charles L. Mayer Awards are a new type of award in that they will be given to further the scientific work of the recipient. They are not only rewards for past accomplishments but are also designed to increase the opportunities of those with exceptional abilities to carry on further research."

Science News Letter, December 5, 1942

CONSERVATION

NATURE RAMBLINGS

by Frank Thone



Getting a Break

➤ CONSERVATION of the kind we first heard about, years ago — that of wildlife—seems to be getting a few breaks as a result of the war.

It has already been remarked more than once, that fewer hunters and fishermen have been able to get into the wilderness this season than in the past, which has had the unintended but beneficial effect of an extension of closed seasons on game and fish. By another autumn, exhaustion of existing stocks of sporting ammunition (of which no more is being made) will add its effect.

With the approach of the holiday season, we see some other effects of this indirect conservation. A standing grievance of persons interested in the welfare of our forests has been the marketing of such Christmas greens as native holly, ground pine and mountain laurel leaves. As a rule, these decorations have been taken from the woods without the owners' knowledge or consent, and frequently to the detriment not only of their beauty but often of their very safety.

Stripping of ground pine has been a particularly bad offense in this direction. This creeping plant, a botanical second cousin of the ferns, runs rapidly over denuded soils too sterile to support anything else except possibly mats of moss. It therefore constitutes the ground's only protection against the battering effects of torrential rains, and is to this extent a safeguard against erosion.

Restriction of gasoline supplies will probably prevent at least a part of the marauding expeditions that bring these illegally-acquired Christmas greens to market, for they are transported mainly in battered jallopies and old light trucks. It is possible too, that the intense demand for workers in war industries will have provided their needy owners with better jobs than the looting of their neighbors' land of invaluable wild plants that can be sold only for a pittance anyhow.

Transportation restrictions have had another effect that is not quite so good. The legitimate marketing of sapling spruces from forest plantings in the northern states and Canada has been stopped for lack of flatcars and trucks to haul them. Since the sale of these thinnings for Christmas trees has long provided revenue to pay for part of the labor involved in their removal, loss of this market is proving a genuine hardship to forest administrators.

Science News Letter, December 5, 1942

Alcohol has been produced from bananas in French Guinea, on the west African coast.

Nicotinic acid, the third member of the vitamin B complex, was first isolated from concentrations of liver in 1937.

First Glances at New Books

➤ YOU CAN LEARN most of the fundamental knowledge of radio that you would need for an amateur's license or to enter the armed services in a radio job from the comprehensive, yet compact, library of information on the subject contained in the new war edition of the dollar book published by the *American Radio Relay League*, THE RADIO AMATEUR'S HANDBOOK. Now that women are being accepted for important radio jobs by the armed services and war offices, they will find new interest in this field.

Science News Letter, December 5, 1942

➤ MENTAL FRONTIERS have replaced physical frontiers as the great challenge to enterprise and initiative in America. Pioneer Carl E. Seashore, of the University of Iowa, has had more than a small taste of the invigorating task of mastering both types of frontier in the Midwest. He described his life experiences in pushing forward the frontiers of psychology in a new book, PIONEERING IN PSYCHOLOGY (*University of Iowa Press*, $2.50).

Science News Letter, December 5, 1942

➤ RAMBLING and at times dramatic reminiscences of an obstetrician appear in SAFE DELIVERANCE, by Frederick C Irving (*Houghton Mifflin*, $3).

Science News Letter, December 5, 1942

➤ A BIRDSEYE VIEW of the diseases of war from malaria to mumps is given in SILENT ENEMIES, by Justina Hill (*Putnam*, $2.50). Object of the book is not to frighten but to reassure. This Miss Hill does by telling the methods now available for controlling war plagues. The book is packed with sound information written in clear, fast-moving style.

Science News Letter, December 5, 1942

➤ HUMOR, PHILOSOPHY and much sound medical information distinguish MEMOIRS OF A GUINEA PIG: Eight Years in a Doctor's Waiting Room, by Howard Vincent O'Brien (*Putnam*, $2). Physicians as well as laymen will enjoy it, and both will find it welcome diversion from the reading of war news.

Science News Letter, December 5, 1942

➤ PHYSICIANS and other medical scientists will welcome the monograph, THE HEMORRHAGIC DISEASES AND THE PHYSIOLOGY OF HEMOSTASIS, by Armand J. Quick (*Thomas*, $5), which summarizes current knowledge and emphasizes the clinical aspects of the subject. Too technical for lay reading, of course.

Science News Letter, December 5, 1942

➤ AN UNSAVORY story of a family, THE CLARKS: AN AMERICAN PHENOMENON, by William D. Mangam (*Silver Bow Press*, $2.50), provides social scientists with a new type of "case study," describing the personalities and behavior in a family and their effect on a growing American community.

Science News Letter, December 5, 1942

➤ STORY OF CHEMISTRY as it enters our everyday life is related by Alfred Morgan in GETTING ACQUAINTED WITH CHEMISTRY (*Appleton-Century*, $2.50). Strictly for the layman, this easily read book contains many well-illustrated descriptions of experiments that can be performed at home.

Science News Letter, December 5, 1942

➤ LIKE GILDING THE LILY is any attempt to give the reader a preview of this excellent book, THE HORMONES IN HUMAN REPRODUCTION, by George W. Corner (*Princeton University Press*, $2.75). The layman will gain from it not only comprehensive knowledge of the subject but increased understanding of scientific method and viewpoint.

Science News Letter, December 5, 1942

➤ DISAPPOINTMENT is in store for the reader of WHEN DOCTORS ARE RATIONED, by Dwight Anderson and Margaret Baylous (*Coward-McCann*, $2), if he expects to find in it ABC directions for how to get a doctor when his has gone to war. He will find, however, much general information on doctors, hospitals, medical societies, the selection of doctors for the armed forces, and points by which to judge whether a doctor is a reputable physician or a quack.

Science News Letter, December 5, 1942

• Just Off the Press •

ALFRED NOBEL: DYNAMITE KING—ARCHITECT OF PEACE—Herta E. Pauli—*L. B. Fischer*, 325 p., $3.

BOMBS AWAY: THE STORY OF A BOMBER TEAM — John Steinbeck — *Viking Press*, 185 p., illus., $2.50. Proceeds from the sale of this book go to the Army Air Forces Aid Society Trust Fund.

CHARLES HAMPTON, RESEARCH CHEMIST—Arthur W. Kenny and Stephen C. Kenny —*Dodd, Mead*, 252 p., $2. For older boys and girls, written by an expert chemist with the collaboration of his son.

THE COMMAND OF THE AIR—Giulio Douhet, translated by Dino Ferrari—*Coward-McCann*, 394 p., $4.

ENCYCLOPEDIA OF KNOTS AND FANCY ROPE WORK—Raoul Graumont and John Hensel—*Cornell Maritime Press*, 629 p., illus., $5., 2d edition.

EXPERIMENTAL ELECTRONICS — Ralph H. Müller, R. L. Garman and M. E. Droz—*Prentice-Hall*, 330 p., $4.65; to colleges, $3.50. Textbook, which supplies "definite practical information on the characteristics and non-communication applications of electron tubes."

FIRST AID TO THE INJURED AND THE SICK, AN ADVANCED AMBULANCE HANDBOOK — Norman Hammer, ed. — *Williams & Wilkins*, 336 p., illus., $2. The 18th edition of Warwick & Tunstall's First Aid, a standard English reference book since its first publication in 1901.

GREENLAND — Vilhjalmur Stefansson — *Doubleday, Doran*, 338 p., $3.50. The companion volume to the author's book on Iceland. This volume emphasizes the importance of Greenland, and its changed position in the affairs of the world since the United States has taken it over.

HE'S IN THE SUBMARINES NOW—Henry Felsen—*McBride*, 175 p., illus., $2.50. The story of the submarine sailor from the time he enters school until he is entitled to wear the Dolphin insignia. Of particular interest to prospective trainees.

MAN AND THE BIOLOGICAL WORLD — J. Speed Rogers, Theodore H. Hubbell and C. Francis Byers—*McGraw-Hill*, 607 p., illus., $3.50.

MENTAL ILLNESS: A GUIDE FOR THE FAMILY—Edith M. Stern and Samuel W. Hamilton, *Commonwealth Fund*, 134 p., $1.

PEOPLES OF THE PHILIPPINES—Herbert W. Krieger—*Smithsonian Institution*, 86 p., illus., free upon direct application to Smithsonian. War background studies, No. 4.

PIONEERING IN PSYCHOLOGY—Carl E. Seashore—*Univ. of Iowa Press*, 232 p., $2.50. University of Iowa Studies, No. 398.

PRINCIPLES OF COLLEGE ALGEBRA—Morris S. Knebelman and Tracy Y. Thomas — *Prentice-Hall*, 380 p., $2.50. Textbook. Cumulative exercises at end of each chaper.

THE RADIO AMATEUR'S HANDBOOK—*American Radio Relay League*, 478 p., $1. 20th edition, 1943.

SCIENCE REMAKES OUR WORLD—James Stokley—*Ives Washburn*, 298 p., illus., $3.50.

SILENT ENEMIES: The Story of the Diseases of War and Their Control—Justina Hill —*Putnam*, 266 p., $2.50.